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AUTHOR Hord, Shirley M.
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ABSTRACT

This paper reviews objectives, methodology, and data analysis procedures of a study concerning educational innovation. This research, part of the Procedures for Adopting Educational Innovations (PAEI) Program at the University of Texas at Austin, was undertaken to study interventions and their effects. It was considered a first step in determining what actions can be taken to assist individuals in their efforts at implementing an innovation. The initial objective of the research was to develop a taxonomy of interventions. The particular innovation looked at in the study was a Teacher Corps Project located in a junior high school in a university town. An onsite ethnographer documented interventions at the site and these data were utilized to conceptualize and characterize the emerging taxonomy of interventions. Tentative classification categories were defined using field data. In accomplishing this task, definitional and conceptional issues were the focus of dynamic interactions of the program staff with each other and with the qualitative and quantitative data. A procedure was developed for reducing the data and at the same time isolating each intervention for further study. (Author/JM)

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CONTEXT AND RESEARCH PLAN FOR ANALYSIS OF INTERVENTIONS IN A TWO-YEAR STUDY OF INNOVATION IMPLEMENTATION

Shirley M. Hord

Procedures for Adopting Educational Innovations Program
Research and Development Center for Teacher Education
The University of Texas at Austin

Paper presented at the annual meeting of the
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CONTEXT AND RESEARCH PLAN FOR ANALYSIS OF INTERVENTIONS IN A TWO-YEAR STUDY OF INNOVATION IMPLEMENTATION[1]

Shirley M. Hord

Procedures for Adopting Educational Innovations Program
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> *. . .Men must be discriminating appraisers of their society, knowing coolly and precisely what it is about the society that thwarts or limits them and therefore needs modification. And so must they be discriminating protectors of their institutions, preserving those features that nourish and strengthen them and make them more free. To fit themselves for such tasks, they must be sufficiently serious to study their institutions, sufficiently dedicated to become expert in the art of modifying them, (Gardner, 1969).*

For the past five years the Procedures for Adopting Educational Innovations (PAEI) Program at the Research and Development Center for Teacher Education at the University of Texas at Austin has been engaged in research on change in schools and colleges. The goals of this work, funded by the National Institute of Education, are to acquire detailed understanding of how the adoption of educational innovations takes place, how to facilitate this adoption, and how the process of change affects individuals who must actually implement those innovations.

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[1]The research described herein was conducted under contract with the National Institute of Education. The opinions expressed are those of the author and do not necessarily reflect the position or policy of the National Institute of Education. No endorsement by the National Institute of Education should be inferred.

To reach these goals, measures have been developed to assess two key concepts of the Concerns-Based Adoption Model (CBAM), which focuses on describing individuals involved in the change process. These practical diagnostic tools are useful in planning and monitoring change; they provide information which reveals the state of the process. This knowledge has potential for making possible the prescription of interventions to be used by change agents for the facilitation of the change process. In short, the long-term goal of CBAM research is to gain the understanding of how to prescribe change-facilitating actions grounded on a concerns-based diagnosis.

This paper is designed as a background for a set of research papers that focus on the study of intervention. This paper will explain briefly the importance of a two year study of innovation implementation and how its anticipated outcomes contribute to the goal cited above. The methodology will be reviewed and the data base described. Finally, an overview of data analysis procedures will be explicated.

Overview of PAEI/CBAM

The foundation of PAEI research is the Concerns-Based Adoption Model (Hall, Wallace & Dossett, 1973). This work has resulted in the development and initial verification of concepts and measures which describe individuals as they experience change throughout the process of implementing educational innovations.

The Concerns-Based Adoption Model (CBAM) rests on several assumptions. First, change is not an event occurring at one moment in time, but a process that extends over some duration. Second, since individuals have different needs and skills as they experience change in their own unique way, the individual is the most significant unit of analysis in the assessment of implementation. To change an institution, individuals first must change. Change in individuals is

most effectively facilitated when more information about the individuals, in relation to the innovation, is available. The CBAM model may be used to gain information and describe individuals involved in the change process.

One major dimension of the CBAM is Levels of Use of the Innovation (LoU) (Hall, Loucks, Rutherford & Newlove, 1975). How performance changes as the individual learns about and then uses the innovation is described by LoU. To identify the LoU of an individual, a focused interview (Loucks, Newlove, & Hall, 1976) is used with specific questions and follow-up probes. The intent is to discover and describe what individuals are actually doing in relation to the innovation. With the LoU interview technique the user may be rated at one of the eight use levels.

The second major dimension of the CBAM, Stages of Concern About the Innovation (SoC) (Hall & Rutherford, 1976), describes the perceptions and kinds of feelings the individual experiences about the innovation as it is being implemented. The Stages of Concern Questionnaire (Hall, George, & Rutherford, 1977) is a 35-item, paper and pencil instrument which reveals an individual's concerns, i.e., feelings, attitudes and affect, toward the innovation. Processing the responses provides a profile of the individual's relative intensity of each of the seven identified Stages of Concern.

PAEI research has initially confirmed that Stages of Concern and Levels of Use exist and that individuals can move from stage to stage and level to level as hypothesized. Research (Hall, 1976) has indicated that individuals who are not using the innovation will have relatively higher concerns at Stages 0, 1, and 2. As use of the innovation is initiated, there is a decrease in the intensity of these stages, whereas Stage 3 concerns become higher or more intense. With increased use and experience with the innovation, the tendency is for

Stages 4, 5, and 6 concerns to become higher with decrease in Stages 0, 1, 2, and 3.

A profile of concerns and use levels for teachers within a school or district can be constructed in reference to the implementation of an innovation. If higher level of use or concerns are desirable, then it is hypothesized that strategies or interventions can be devised to resolve early concerns and improve skills, thereby facilitating the potential for arousal of later concerns. Thus, the CBAM concepts and measures might be useful as diagnostic tools to develop prescriptions for facilitating change. In combination, these concepts and measures could provide a rich diagnostic base for making innovation implementation in schools and colleges more effective, more efficient, and more personalized for the individual. However, it should be reiterated that the measures and concepts do not prescribe; they merely describe the current state of the individuals and their institutions.

Development of Current Focus of Work

As the PAEI/CBAM staff have interacted with practitioners, policy-makers and other researchers in disseminating the concepts and measures of CBAM, there has been a recurring theme expressed by these audiences: we understand the CBAM diagnostic ideas, we see value in utilizing Stages of Concern and Levels of Use for assessment of users. But, after we've done that, what do we as change agents do to supply the type of support or assistance needed to help individuals change?

As a result of such feedback, the PAEI/CBAM program members synthesized the needs voiced from a wide range of audience perspectives, i.e., practitioners, researchers and policy-makers, and converged on the idea of prescribing. Implementation facilitators already employ purposeful acts, or interventions, to

encourage, support, and assist the user. Although such actions are taken to support an implementation effort, the actual effects are generally unknown. In fact, some actions and events may actually work against implementation. The CBAM model assumes that different interventions have different effects, depending on the individual's Stage of Concern and Level of Use. PAEI research is attempting to identify how different interventions affect different users and in what ways under which conditions.

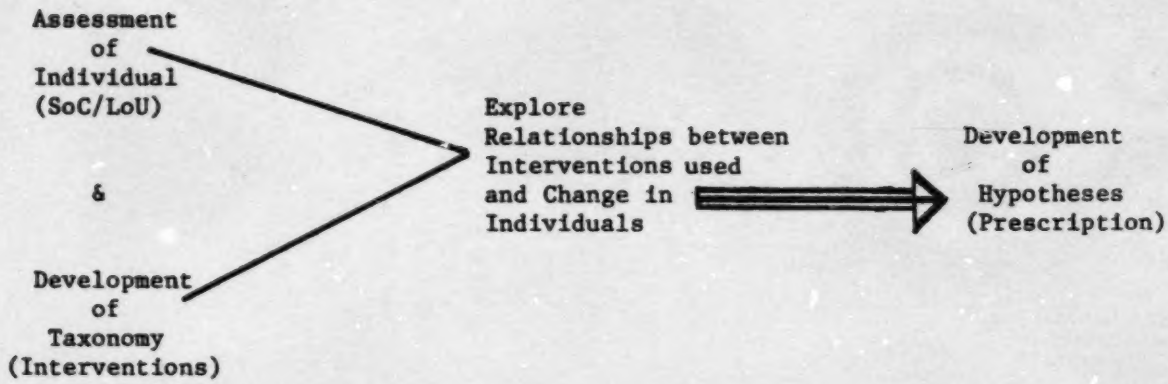
Since neither a suitable integrated conceptualization nor typology for interventions exists, one area of pursuit has been defining and characterizing interventions. Determining ways to describe and classify interventions and their relationship to the user and the innovation are basic underpinnings of the long-range goal of being able to understand, diagnose, and adaptively facilitate change efforts. Therefore, a classification system is being developed for describing interventions, a system that will be useful to practitioners and permit researchers to weigh more accurately the effects of specific interventions. This system would aid in the conceptualization of the area of intervention, in the cataloging of interventions in a way meaningful to both practitioners and researchers, and finally in the compilation of sufficient information about the effects of various interventions to possibly suggest the selection of one over the other, (see Figure 1).

The Study

As a part of the program research an intensive and extensive study of interventions was initiated in the spring of 1976. A two year Teacher Corps Project in an urban junior high school provided one of the study settings. The process and procedures of the investigation at this site and the subsequent

Figure 1

GOALS OF PAEI/CBAM RESEARCH


Assessment of Individual (SoC/LoU)
&
Development of Taxonomy (Interventions)
Explore Relationships between Interventions used and Change in Individuals
Development of Hypotheses (Prescription)

analyses of data are described in this report. The major questions of this research have been:

1) What is the definition of intervention?

2) What are the types and characteristics of interventions?

In 1976, the program began an exploration of the questions, "What is an intervention? How do you find or capture an intervention? What is an intervention's shape? components? behaviors? effects?" (One might be reminded of Piglet and Pooh* as they tracked around the spinney of larch trees searching for the woozle. They didn't know what a woozle looked like, and, much to the mirth of Christopher Robin, who watched from the topmost tree branches, Pooh and Piglet traced and retraced their steps in their circular search.) The territory of where to find interventions was more or less identified, but what the kinds or types of interventions look like has been the subject of considerable "tracking" efforts and serious deliberative study by the PAEI/CBAM Program staff.

Review of the Literature

Early review. An extensive search of the change literature was initiated in the fall of 1976 in collaboration with the in-house Search and Analysis component of the R&D Center, as an integral part of PAEI/CBAM work on interventions. Utilizing a wide variety of descriptors and a dozen indices including the more typical ERIC, Psychological Abstracts, Dissertations Abstracts International, and broadening to include more wide-ranging indices such as Business Periodicals, this search resulted in items from a wide array of sources and disciplines. The abstracts, journal articles, and books were reviewed in an

*Milne, A. A., The World of Pooh.

attempt to organize the materials and findings in such a ways as to reveal what has been reported out related to interventions. In a word, there was little data, though some case studies provided material for considering the definition and types of interventions. The objectives of the literature search paralleled those of the intervention study: to delineate a definition to aid in the conceptualization of intervention, to construct an array of kinds of interventions for inclusion in a typology that would be usable in change research and by practicing change facilitators.

Ongoing Acquisitions. During the two-year study of intervention/innovation implementation there was a concerted and continuing quest to obtain from computer-based current awareness services, from colleagues, and from papers shared at professional meetings the most recent intervention related publications. It was hoped that what was being currently developed and studied by others might be available as a source of additional information.

Recent exploration for strategy interventions. After the conclusion of the two-year study, "levels of interventions" were developed out of data analyses activities by the staff (see Analysis section of paper). In an effort to learn more about one of these intervention levels, ("strategies"), the literature was re-examined. Though various types of strategies were suggested, it has not been made clear by writers on change how one should go about operationalizing these interventions. The literature continues to be explored, though it has not been a rich source of the kinds of information needed.

Overview of Teacher Corps Project

The Teacher Corps Project, which provided a setting for studying implementation, was located in the single junior high school in a university town of

40,000 (Zigarmi, Goldstein, & Rutherford, 1979). The Teacher Corps Project's goal was the development of a success-oriented teaching/learning environment. Inservice training programs, one of which focused on Positive Discipline Strategies, based on William Glasser's concepts and techniques of Reality Therapy (1969), were to serve as means to accomplish this goal. The Project provided the opportunity for the PAEI/CBAM study to focus on interventions--acts, conditions, or influences on individuals--and on how individuals changed (as a result of implementing this innovation), as indicated through regularly collected SoC and LoU data.

Field Study Methodology

The investigation centered on obtaining information about interventions, and on the change of individuals over the two-year period. In order to do this, both qualitative and quantitative data were collected. It was expected that gaining important information about what change facilitators do (interventions) in an implementation effort, and relating this to the effect(s) on individuals (in terms of how they change) would provide significant data for understanding the relationship.

Qualitative Data. In the study, a half-time ethnographer documented the implementation of Discipline Strategies from its inception as a nationally funded initiative to the termination of the grant. The ethnographer's role was to refrain from acting, intervening or interfere in any way with the change process, but simply to record the scenario of events that unfolded during the two-year change effort. Information was collected by the ethnographer on all actions or events which might influence the use of Discipline Strategies (Zigarmi, 1979). She focused on classroom teachers, counselors, and school-site administrators as they interacted collectively and separately with local university

personnel who served as trainers and facilitators of the individuals involved in the implementation effort. Her sphere of observations and data collection included those parts of the school district organization, local community, Teacher Corps structure and administration, and university community which might impact the change process. In order to develop detailed records and descriptions of the interventions as they unfolded, the ethnographic methodology was selected.

The ethnographer's observations of meetings and other formal and informal planned (and unplanned) events and activities, and her interactions with persons at the field site resulted in descriptive narratives which comprise the qualitative data. These "protocols" contain a broad and diverse array of data including the acts, conditions, and treatments of all magnitude, types and durations that might affect innovation use. The ethnographer focused on individuals at the school level, as well as on other persons across the entire school district organization, to encompass an overall system-wide view of ongoing change efforts. As the ethnographer observed or interacted with persons at the implementation site in interviews, the data were enriched by not only the ethnographer's perceptions but also by the independent views and reactions of these individuals.

Initially, the ethnographer's tasks were left purposefully open and unspecified as she began collecting information at the site. It was thought that this would permit a broader approach to identifying events which might be considered as interventions and that the conceptually unstructured data collection, with little a priori organization, would not restrict or impede a new and creative framework. In this way premature closure on the meaning of intervention was avoided.

"What does an ethnographer do to collect data?" is a question which has been asked and is curiously puzzling to those not familiar with this methodol-

ogy. One person described, "She is unobtrusively everywhere all the time and is writing on paper like crazy, getting writer's cramp." The ethnographer charged with the responsibility of getting the data was especially successful in this role. Volumes of information and feedback from the project attest to this fact. The ethnographer was a professional educator, competent and personable, able to build trust and gain acceptance, so that she blended into the system. In short, she gained the trust of individuals and access to what was occurring in the implementation process (Hord, 1978). For additional information on ethnographic methodology from a variety of perspectives, see AERA presentations: Hall, 1978; Zigarmi and Zigarmi, 1978; Dasho, 1978; Tikunoff and Ward, 1978.

The ethnographer attended, with low visibility, meetings of all sizes which related to the change effort. These events ranged from large group training sessions, to small group planning sessions, to one-on-one conferences. At a different level in informal visits with individuals, more information was collected as the ethnographer questioned and interacted with users to enlarge the data base. Always there was the effort to take note of any and all acts and events which might influence the use of the innovation—in short, document <u>all</u> possible interventions.

These data were presented in descriptive narratives which were tape recorded by the ethnographer on site as she spent five to ten days per month at the project documenting the implementation efforts. They were transcribed at the research center and typed into protocols which number 31 volumes. These volumes have been developed into a case study (Zigarmi, 1979) of the two-year change effort, which in addition to the quantitative data comprise the data base.

<u>Quantitative Data</u>. Quantitative data were collected over the two years by assessing the Stages of Concern (SoC) and Levels of Use (LoU) of users (N=42) at the study site. Results were used to explore relationships between interven-

tions made in the change effort and their effects on the users and the innovation (Rutherford & Loucks, 1979).

Teachers were interviewed individually five times by R&D Center staff to determine their Level of Use of Discipline Strategies. These data were collected in September, 1976; January, 1977; April, 1977; October, 1977; and April, 1978. The data collection periods for SoC coincided with the LoU data points, with an additional SoC data collection in August, 1977, coincident with a preschool inservice workshop. These data, derived from the paper and pencil instrument, were collected by interviewers or mailed by individuals to the R&D Center for processing.

Descriptive Data. "The distinction between quantitative and qualitative research, while it has been helpful in promoting a type of research which has been largely neglected in classroom and school research, eventually breaks down when actual cases are closely examined. While there are pure examples of each, there are also, increasingly, 'mixed' cases where it is difficult to determine where qualitative ends and quantitative begins (or vice versa)," (Koehler, 1979). As a response to this problem, Virginia Koehler proposes two different conceptions of research, "improvement" and "descriptive." The aim of descriptive research is theory development to be used in understanding what is happening. Descriptive research is the label for the "mixed bag" of data collected from users on their view of the power of interventions in the implementation process.

During the January, 1977, and October, 1977, LoU interviews teachers were asked open-ended questions about what actions or events had influenced their use of the innovation. In the October interview an additional question inquired about two specific interventions. In May, 1978, small group interviews, preceded by the utilization of the intervention questionnaire, focused again on the

influence of interventions on use (Rutherford, 1979). While the interviews and information from the ethnographic protocols provided open-ended qualitative data, the questionnaire responses gathered on a Likert type scale provided quantitative type data on users' perceptions. Hence, this set of data, both "fish and fowl," are considered together.

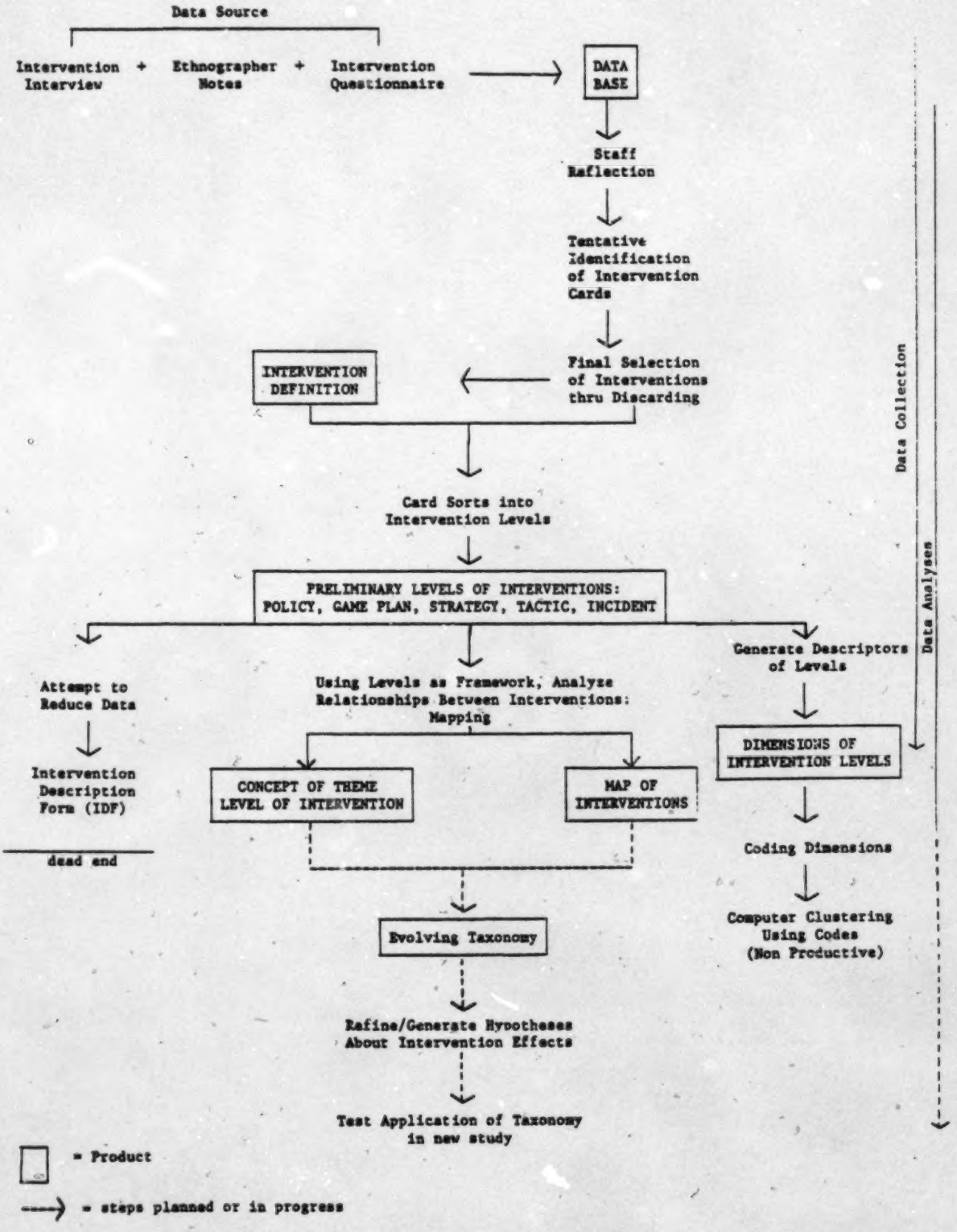
Analysis

The remainder of this paper will be used to explicate the steps of analyzing the qualitative and quantitative data. A bird's eye sketch of these steps and the stages of activity employed for developing conceptual sense, i.e., 1) defining interventions, and 2) identifying the characteristics and types of interventions, for the development of a taxonomy of interventions, will be presented (see Figure 2). Achieving the long-range objective of developing a taxonomy of interventions depends on completing many smaller and more short-term objectives first. Some questions must be answered before others can be asked and certain activities are built upon others. Thus, before the full diagnostic/prescriptive process of change facilitation can be described in practical terms and then researched, a taxonomy of interventions had to be developed.

Qualitative Analysis of Interventions. Analyses of the qualitative/ethnographic data provided by the on-site ethnographer's protocols was completed as follows:

1) Data systematically gathered by the field-based ethnographer were transcribed. Protocols, or soft-bound volumes of written descriptions, were produced and were circulated to the PAEI/CBAM staff to be perused. This provided a common framework and the body of actions and events which comprised the raw data of the intervention study.

STEPS AND PRODUCTS IN ANALYSES OF INTERVENTIONS



2) A monthly debriefing meeting involving the staff and ethnographer provided the opportunity for coordination and planning between the research center center and study site. On two occasions, the on-site coordinator (permanent staff, officially responsible for the PAEI/CBAM Program user system collaboration at the site) was brought to the Center to plan, reflect, and help in filling out ethnographer and project staff perceptions. These meetings provided time for the identification and definition of interventions, for reflection and the conceptualization of a classification schema for interventions, and for the further definition and description of intervention categories.

3) Actions and events from the data which might serve to represent interventions were extracted and printed on cards. Additional items were provided by case studies from the literature. Multiple decks of these cards were produced so that they could be utilized for analysis. Card sorts of these by the CBAM staff and ethnographer and interaction of the staff with external consultants contributed to the refinement and consensus of the working definition of intervention. This definition follows:

> Intervention: Event(s) or action(s) that influence use of the innovation.

4) Utilizing the "card decks" (from #3 above) in subsequent sorting activities, the staff developed intervention classifications. In this way "policy," "game plan," "strategy," "tactic" and "incident," categories have been generated to suggest the level and scope of intervention(s). For example, "game plan" is the overall design for implementing the innovation, encompassing all components of the innovation, all aspects of the implementation process and extending the full time period of the change process. In contrast, an "incident" is the singular occurrence of an action or event which may target one

or more individuals, is of short duration and is the smallest size intervention (This classification will be described more fully in the subsequent paper, Hall, Zigarmi and Hord, 1979).

The concern for establishing intergroup reliability of the staff members' classification of interventions and the agreement of individuals with group consensus was pursued. Individual reliability was estimated to be .46, while group consensus reliability was .88 (Ebel, 1951). Reliability will continue to be addressed as the classification schema gains in rigor.

5) Intervention Description Forms were developed which drew together into one form all of the related qualitative and quantitative data around selected interventions. Repeated applications of the same interventions were described by appending "cases" to the summary sheets which provide the basic information.

6) Related to activity #4 an ethnographer and program research assistant worked out a systematic prodecure for "mapping" related interventions extracted from the protocols (the mapping technique will be described in Zigarmi and Goldstein, 1979). A larger "game plan" or "strategy" intervention is decomposed into smaller "tactics" and "incidents" which are organized to indicate how they fit together. This effort serves to illustrate the interrelationship of smaller and larger units of interventions and is beginning to illustrate relative frequency and interrelationship of different classes of interventions. During this activity the concept of "theme" interventions emerged.

7) Once levels of interventions were described and characterized by their most significant attributes, the attempt was made to further describe properties for classifying interventions within each level. As a case in point, at the <u>incident</u> level, the intervention cards were sorted into subgroupss according to apparent common properties. Further brainstorming resulted in the specification of common characteristics, or <u>dimensions</u>, labeled "sublevels," "source,"

"target," "function," "medium," "flow," and "location." The dimension function for example, is conceptualized as the purpose of the intervention. Various kinds of functions of an incident level intervention include such activities as training, sharing information, decision-making, clarifying, et.al.

Quantitative Analysis of Interventions. The dimensions of interventions (see Qualitative Analysis Section, #7) have been used to describe and code interventions. Each intervention was assigned a code for each of the dimensions. The resulting several digit numerals were then grouped by computer in order to look for common patterns.

This activity was an effort to discover through computer analysis how various types of interventions within each intervention level might group together, thus providing a second stage classification of interventions for the taxonomy. For instance, taking a set of tactic level interventions and coding each of its dimensions provided numerals to be punched into the computer. Systematic techniques of cluster analyses employed to discriminate meaningful tactic types has not yet been as fruitful as hoped. The utilization of clinical impressions and intuitive sortings for clustering on like attributes by the staff may contribute productively to the taxonomy building. One or more of these procedures will hopefully lead to the discovery of the most frequent and reasonable typologies of interventions at each level, i.e., incident, tactic, strategy, etc.

Analysis of Descriptive Intervention Data. During CBAM interviews, staff members talked with teachers and administrators in order to identify and describe their perceptions of what had influenced their use of the innovation. In addition to information gleaned from the ethnographic protocols, a strategy in the search for interventions, intervenors, and influences of change was employed in May of 1978. Small group interviews, preceded by the administration of the intervention questionnaire to each member of the group, focused on the influence

of interventions. A first cut at analyzing these data has been done by several of the staff (Rutherford, 1979).

Analyzing Quantitative Data to Explore the Effects of Interventions

The research has demonstrated that various acts, conditions, and events affect individual SoC and LoU movement and thereby the course of the implementation process. These acts, conditions, and events have been labeled interventions and are viewed as a significant dimension in the study of change. The long-range goal of attributing changes in SoC and LoU to specific interventions will not be a simple task. Though this is a large task for the future, an initial activity of looking at relationships has begun (Rutherford and Loucks, 1979).

In our qualitative and quantitative data base when a specific intervention is hypothesized to have an effect on the innovation implementation, the SoC and LoU data can be examined before and after the intervention's occurrence for evidence of changes. Statistical analysis, such as the analysis of covariance, may be helpful in assessing the probability that observed changes are due to "random" fluctuations in the data. We anticipate that much of the data collected during the four years of SoC and LoU longitudinal research will be very helpful as indices of the extent to which SoC and LoU change in the normal course of events. Only on the basis of the staff's experience and the availability of such baseline data can changes in SoC and LoU such as those evidenced in the Teacher Corps Project be judged to be unusual and, therefore, be attributed to specific interventions.

Future Study

Once it is known which interventions contributed to which changes in individual's SoC and LoU, these data, in combination with information about the var-

ious types of interventions and setting, can be cross-related. Principles can then be generated that describe likely effects from selected interventions. Conducting empirical investigations to estimate the probability of association among intervention types and SoC/LoU is an important next step. This will result in a tool that practitioners can use in the facilitation of change and that researchers can use to understand more fully how various change agents affect outcomes.

Summary

This research was undertaken to study interventions and their effects, as a first step in determining what actions can be taken to assist individuals in their efforts at implementing an innovation. These possible actions are referred to in general as "interventions." This work was assisted by the ethnographic study of a change effort and the interventions involved, (Zigarmi, 1979). An on-site ethnographer documented interventions at the site, and these data were utilized to conceptualize and characterize the emerging taxonomy of interventions.

The initial objective has been to develop a taxonomy of interventions. A taxonomy requires dimensions, categories, or attributes which can serve as the basis for classification. Tentative classification categories were defined out of field data, rather than imposing some subjective a priori set; the initial taxonomy is described in a subsequent paper (Hall, Zigarmi, and Hord, 1979). In accomplishing this task, definitional and conceptual issues have been the focus of the dynamic interactions of the program staff with each other and with the qualitative and quantitative data, the ethnographer, the literature, consultants, on-site research coordinators, and other practitioners. A procedure has

been developed for reducing the data and at the same time isolating each intervention for further analysis, (Zigarmi and Goldstein, 1979).

This paper, which has developed the context, enumerated the processes for data collection, and highlighted the array of analyses employed with the data from the study is one of a set. For in-depth presentations of the various analyses the reader is referred to other papers in the set. See Zigarmi and Goldstein, "A Mapping Technique for Analysis of Ethnographic Data and Its Contribution to the Development of a Theory of Intervention," for a report of the mapping procedure developed for ethnographic data analysis; Rutherford analyzes users' perceptions of interventions in "A Study of the Effects of Various Interventions on the Implementation Process." An analysis of individual's changes in concerns and levels of use as related to interventions in the ongoing implementation effort is made by S. Loucks and W. Rutherford in the paper, "Examination of the Innovation Implementation Effort by Longitudinal Analysis of Changes in Teachers' Stages of Concern and Levels of Use." In "A Taxonomy of Interventions: The Prototype and Initial Testing," Hall, Zigarmi, and Hord present the prototype taxonomy, useful in analyzing interventions.

References

Dasho, S. J. Three perspectives on naturalistic data collection for research on teaching. Paper presented at the annual convention of the American Educational Research Association, Toronto, March, 1978.

Ebel, R. L. Estimation of the reliability of ratings. Psychometrika, 1951, 16, 407-424.

Gardner, J.W. Problems of reform. Dynamics of Academic Reform. Hefferlin, J.B.L., ed. San Francisco: Jossey-Bass, Inc., 1969.

Hall, G. E. Ethnographers and ethnographic data, an iceberg of the first order for the research manager. Paper presented at the annual convention of the American Educational Research Association, Toronto, March, 1978.

Hall, G. E. The study of individual teacher and professor concerns about innovations. The Journal of Teacher Education, Spring 1976, 27(1), 22-23.

Hall, G. E., George, A. A., & Rutherford, W. L. Measuring stages of concern about the innovation: A manual for use of the SoC questionnaire. Austin: Research and Development Center for Teacher Education, The University of Texas, 1977.

Hall, G. E., Loucks, S. F., Rutherford, W. L. & Newlove, B. W. Levels of use of the innovation: A framework for analyzing innovation adoption. The Journal of Teacher Education, Spring 1975, 26(1), 52-56.

Hall, G. E., & Rutherford, W. L. Concerns of teachers about implementing team teaching. Educational Leadership, December 1976, 34(3), 227-233.

Hall, G. E., Wallace, R. C., & Dossett, W. A. A developmental conceptualization of the adoption process within educational institutions. Austin: Research and Development Center for Teacher Education, The University of Texas, 1973.

Hall, G. E., Zigarmi, P., & Hord, S. M. A taxonomy of interventions: The prototype and initial testing. Paper presented at the annual convention of the American Educational Research Association, San Francisco, April, 1979.

Hord, S. M. Under the eye of the ethnographer: Reactions and perceptions of those who are observed. Paper presented at the annual convention of the American Educational Research Association, Toronto, March, 1978.

Koehler, V. Methodology for research on teacher training. Paper presented at the conference for Exploring Issues in Teacher Education: Questions for Future Research, Austin, January, 1979.

Loucks, S. F., Newlove, B. W. & Hall, G. E. Measuring levels of use of the innovation: A manual for trainers, interviewers and raters. Austin: Research and Development Center for Teacher Education, The University of Texas, 1975.

Rutherford, W. L. A study of the effects of various interventions on the implementation process. Paper presented at the annual convention of the American Educational Research Association, San Francisco, April, 1979.

Rutherford, W. L. & Loucks, S. F. Examination of the innovation implementation effort by longitudinal analysis of changes in teachers' stages of concern and levels of use. Paper presented at the annual convention of the American Educational Research Association, San Francisco, April, 1979.

Tikunoff, W. J. & Ward, B. A. Conducting naturalistic research on teaching: Some procedural considerations. Paper presented at the annual convention of the American Educational Research Association, Toronto, March, 1978.

Zigarmi, D. & Zigarmi P. The psychological stresses of ethnographic research. Paper presented at the annual convention of the American Educational Research Association, Toronto, March, 1978.

Zigarmi, P. The implementation of a new approach to discipline in a junior high school. Draft, 1979.

Zigarmi, P. & Goldstein, M. A mapping technique for analysis of ethnographic data and its contribution to the development of a theory of intervention. Paper presented at the annual convention of the American Educational Research Association, San Francisco, April, 1979.

Zigarmi, P., Goldstein, M. & Rutherford, W. L. Implementing a new approach to discipline in a junior high school: A two year study of a teacher corps project. The Journal of Classroom Interaction, 1978, 14(1), 19-27.